



## ABSTRACT OF THE DISCLOSURE

### LIQUID SENSOR AND ICE DETECTOR

An improved apparatus and a method of measuring and interpreting reliably, simply and accurately the information on continuous liquid level, liquid temperature and other liquid properties within a vessel. The apparatus could be made of a powered heater element and temperature sensors can be screen-printed, vacuum deposited, etched, welded, soldered or plated on one or both sides of a single rigid or a flexible substrate. The geometry of the heater determines the curve shape, such as steepness or shallowness of a temperature profile along a heater. Various parallel and serial configurations of thermocouples or temperature sensors can be used to measure the temperature along a heater. Simultaneous measurements from all the temperature sensors, before and after heat is applied, are used to generate accurate temperature profiles for the entire heater. Different features of the temperature profiles will determine accurately the liquid level, liquid temperature and other liquid properties. Apparatus of the invention may also be used to detect ice formation.